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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/925,223      | 08/08/2001  | Stephen R. Gilbert   | 10004085-1          | 3141             |

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AGILENT TECHNOLOGIES  
Legal Department, 51U-PD  
Intellectual Property Administration  
P.O. Box 58043  
Santa Clara, CA 95052-8043

EXAMINER

MEEKS, TIMOTHY HOWARD

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1762

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/925,223

Applicant(s)

GILBERT ET AL.

Examiner

Timothy H. Meeks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-25 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated by WO

00/49646.

The claimed process is explicitly disclosed at page 13, lines 25-35, page 14, lines 5-45, page 15, lines 12-25, and Examples 1 and 2. With respect to claim 18, WO 00/49646 describes a "heated substrate" prior to deposition of the PZT, hence, preheating of the substrate is inherently performed.

Claims 1-8 and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by WO

99/42282.

The claimed process is explicitly disclosed at page 17, 2<sup>nd</sup> paragraph, page 20, last paragraph, page 22, 1<sup>st</sup> paragraph, page 24, 2<sup>nd</sup> paragraph, page 25, full page, page 26, 1<sup>st</sup> paragraph, and Examples 1 and 2. With respect to claim 18, WO 99/42282 describes a "heated substrate" prior to deposition of the PZT, hence, preheating of the substrate is inherently

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performed. With respect to claim 17, the lead to Zr and Ti ratios are inherently from the percentages of compounds found in the deposited film shown in the examples.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/42282 in view of WO 00/49646.

Octane based solvent is not disclosed in WO '282. However, because WO '646 discloses at page 14, lines 23-25 that an octane/polyamine solvent is operable for the precursors used in WO '282, it would have been obvious to use this precursor to dissolve the precursors of WO '282 in the octane-based solvent with a reasonable expectation of the solvent being operable for those precursors.

Claims 19-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 or WO 00/49646, each in view of Horie et al. (6,387,182).

The primary references do not explicitly disclose preheating the substrate for the claimed times, or disposing the preheated substrate on a heated susceptor. However, because Horie discloses that preheating the substrate held above a heated susceptor using a heated gas prior to placing the substrate on the heated susceptor for deposition of a dielectric film such as PZT prevents thermal shock to the substrate (col. 4, line 64, col. 13, line 33 to col. 14, line 25, it

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would have been obvious to have so preheated the substrate prior to placing on a heated susceptor for PZT deposition to prevent thermal shock to the substrate. The heating time would clearly depend on such factors such as size of the substrate, thermal conductivity of the gas for preheating, distance of the substrate from the gas nozzle, etc., and hence derivation of the claimed times through routine experimentation for optimization would have been obvious.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 or WO 00/49646, each in view of Yamamuka et al. (6,312,526).

The primary references do not disclose flow a purge gas to reduce film deposits on the susceptor and chamber walls. However, because Yamamuka discloses that providing such purge gas flow prevents condensing of the source gas within the reaction chamber during deposition of films such as PZT and hence reduces particle contamination (col. 1, line 38, col. 4, line 60 to col. 5, line 9), it would have been obvious to have provided such purge gas flow to prevent particle contamination.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 or WO 00/49646, each in view of Horie et al., as applied above, and further in view of Yamamuka et al.

Provision of the purge gas flow to prevent particle contamination would have been obvious for the reasons established in the paragraph directly above.

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*Allowable Subject Matter*

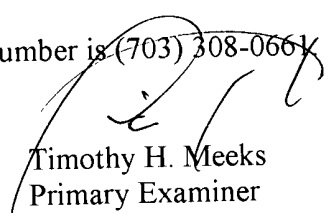
Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: There is no teaching or suggestion to mix two solutions that both contain all three of the metal precursors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon, Tue, and Thu, 6:00-6:30, and Sun, 6-10 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Timothy H. Meeks  
Primary Examiner  
Art Unit 1762

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April 7, 2003